

the surface for the fibula is less triangular; the posterior portion is wider, with a less deep groove for the flexor longus pollicis; the surfaces for the os calcis with the deep groove are much as in Man.

There are also a few carpal, metacarpal, and phalangeal bones of the fingers and toes; the metacarpal bones are long and curved inwards, with large lower articulating surfaces; the bones of the fingers have their edges much turned under on the anterior surface, for the protection of the vessels, &c. in the act of climbing.

The height of this specimen must have been nearly  $5\frac{1}{2}$  feet, and the breadth of the shoulders, judging from the scapulæ and ribs, 2 feet at least, and probably more. The hands extend a little below the knees; the abdomen, judging from the iliac fossæ, must be nearly 2 feet wide; the lower extremities much bowed.

Boston, May 11, 1852.

---

VI.—On some genera of the Icacinaceæ. By JOHN MIERS, Esq., F.R.S., F.L.S.

[Continued from vol. ix. p. 492.]

STEMONURUS.

THERE can exist no doubt that the genus *Stemonurus*, proposed by Professor Blume in his 'Bijdragen' in 1826, is the same as the *Gomphandra* of Dr. Wallich, although they have hitherto been considered as distinct; but at the same time there is every reason to conclude, that both are again identical with the *Lasiantha* of Pal. de Beauvois, established as far antecedently as 1805, in his 'Flora Owariensis,' and placed by DeCandolle in his 'Prodromus' (i. p. 636) as a doubtful genus of the *Ampe- lidæ*: in such case, the latter name, on account of its priority, ought to claim the preference. As however it is contrary to the rules of science to form a compound generic term from both Greek and Latin roots, the name would necessarily require to be modified into *Lasiandra*, one that has long been preoccupied. Besides this, we have to consider the confusion likely to arise from increasing a list of consimilar names, already too numerous, as *Lasiandra*, *Lasianthæa*, *Lasiantha*, *Lasianthus*, and *Lasianthera*, and also, that in reality the latter name is untenable, because of the incorrectness of its signification, for in the present case it will be seen, that it is not the anther, but the filament which is villous. For all these reasons, I strongly recommend the preference to be given to *Stemonurus*, the next in priority, as the most appropriate designation of this genus.

Its most marked peculiarity consists in the character of its stamens; the filaments sometimes shorter, often longer than the petals, are generally very broad, extremely thick and fleshy, obtuse at their summit with a small apical point, to which the anthers are attached, and they have a somewhat prominent internal keel down the middle: the margins of their broad summit and the upper part of the keel are fringed with long transparent white hairs, clavate at their extremity and bent, so as to form a crest over the anthers: from this character both the names of Beauvois and Blume originated. The flowers, sometimes hermaphrodite, are frequently polygamous in the same plant, that is to say, either the anthers are void of pollen, or the ovarium is deficient of any ovules, or both these imperfections occur at the same time: it does not appear to me that they are constantly unisexual, as generally stated. The analysis of the structure of this genus has been attended with much difficulty, because of the frequent abortion of some of its parts, especially the ovarium, which is often deficient of cells or ovules; and even when the ovules exist, it is not easy to detect their presence, on account of their extreme minuteness, in an early stage of the flower. I was for a long while unable to solve the anomalies of its structure, and almost gave up the matter in despair, but patient examination at length overcame the difficulties: not one in twenty instances exhibits the smallest trace of an existing ovule, nothing but a fleshy mass appearing to constitute the ovarium, which is always comparatively small: indications of the existence of more cells than one are sometimes observable, but these are not large enough to be well defined; and even in the case where a single distinct cell exists with two suspended ovules, these are so minute that they might readily be overlooked. After the period of fecundation, however, the petals and stamens fall away, when the ovarium attains a rapid growth, and soon displays itself as an oblong cylindrical body of many times its former dimensions, seated on its small persistent calyx and crowned by a large pulvinate disk: it now unmistakeably exhibits to the naked eye a single cell containing two large suspended ovules and conforming to all the usual characters of the order. With one exception I have never met with flowers in an intermediate stage, and it is not therefore surprising that *Stemonurus* and *Gomphandra* should have been so long considered as two distinct genera. The nature of the pulviniform gland that forms so prominent a feature on the summit of the ovarium, and which evidently suggested the name given by Dr. Wallich, is not altogether manifest. On making a longitudinal section of a pistillum in its early stage, when it consists of a very small, 4- or 5-lobed, short cylinder, it will be seen crowned by a fleshy glandular ring of the same

shape, but of a different colour from the lower and central portions, where the ovuligerous cell is seen, whenever discernible: this glandular appendage is sometimes in a small degree conical towards the centre, but more generally deeply umbilicate, and in the middle of this depression is seen a conspicuous prominence consisting of the real style and stigma: this is in the form of a very short hollow tube, crowned by four or five very minute teeth, corresponding in number to the lobes of the ovarium. On the growth of the pistil, in the manner before described, the gland just mentioned also expands, assuming the form of a large pulvinate disk, more or less lobed, which often exceeds in diameter, and therefore overhangs the summit of the ovarium, while the style and stigma become withered into a small central umbilicated depression. This early stage of the ovarium is tolerably well depicted in plate 953. fig. 5. of Dr. Wight's 'Icones,' while its subsequent clavated appearance is shown in plate 954. fig. 6. of the same work. I have frequently quoted instances of the existence of a similar epigynous gland upon the summit of an inferior ovarium, but I know of no instance in which it forms so prominent a mark as in this case.

At one time (*huj. op.* ix. p. 224) it appeared to me desirable to unite the *Phlebocalymna* of Griffiths, as well as the *Platea* of Blume, with *Stemonurus*, which differ in no respect from the last-named genus, except in the absence of the villous fringe that forms such a remarkable crest overhanging the anthers: from Dr. Wight's 'Icones' I was at first led to believe that this was only a sexual difference, but careful observation does not confirm this conclusion. I find it a constant character in particular species, and on this account it will probably be better to keep *Stemonurus* distinct; but in this case *Phlebocalymna* and *Platea* will merge into another separate genus, the preference being given to the latter name on account of its priority: the differences which are observable between them will be discussed when we come to consider that genus. I propose to unite with them a species which I had placed in *Stemonurus*, under the name of *S. laxiflorus* (Cuming, no. 189, from the Philippine Islands), and also Dr. Wight's variety of *S. polymorpha*, figured in plate 953 of his 'Icones.'

The structure of the putamen bears much analogy to that of *Pennantia*: it is covered with a very small quantity of pulp, and is strongly ribbed by several longitudinal irregular lines: it is more coriaceous than osseous, and is of an oblong form, somewhat flatter upon the ventral face, on which side, a little below the summit, is seen a caruncular prominence, beneath which is a foramen communicating with the interior of the cell. On the same side near the base is another foramen; this however does not penetrate into the cell, but it pierces the substance of the

shell obliquely by a hole which comes out in the point of its attachment to the calyx. Between these foramina is a deep groove filled with a thick chord of fibres: this chord, issuing from the interior of the nut, out of the upper perforation, descends through the basal passage just described, and terminates in the torus of the persistent calyx. By making a careful incision through each side of the shell, the cell is seen filled with an oblong seed, which is suspended from a thick funicular support, continuous with the raphe on one hand and with the chord before mentioned on the other: in *Pennantia* these parts are attached to one another, but here the bundle of fibres is continuous with the raphe, as well as with the external chord, that terminates in the basal torus. The raphe does not descend along the centre of the dorsal face of the seed, as in *Pennantia*, but takes a somewhat lateral course towards nearly the bottom, when it makes a sudden turn, and curving in a hippocrepical form ascends the opposite side of the same face, terminating in a caruncular prominence upon the apex of the seed. The thin integumental covering apparently consists of two adherent membranes, in which the raphe is imbedded; but there is no thickening of these membranes at the base, nor any appearance of a chalaza, unless the caruncular swelling at the apex can be so considered. The albumen is fleshy, and its embryo almost divides into two nearly equal portions, interposing a vacant space between them, and leaving on the edges only a very narrow solid rim of its albuminous substance to connect them; the embryo entirely lines this space, and consists of two extremely thin, almost pellicular cotyledons, which are oblong, nearly the size of the albumen, cordate at the summit, with a short terete radicle in its sinus. I have had an opportunity of examining only a single seed, and I can affirm with confidence that its structure was that above described. A result so greatly at variance with other recorded observations will naturally create a suspicion that the seed so examined may have been a malformation, but there appeared in this case no indication of any abnormal deformity: how then can we account for the existence of an embryo so different in size and form from that figured by Dr. Wight? Is it possible that this distinguished botanist, or more probably his draughtsman, can have mistaken the radicle for the entire embryo? This will appear probable when we carefully examine fig. 10 of his plate 954 above referred to, which gives a transverse section of the seed, where exactly the same lunated space is shown across the middle, which I found to exist, lined with the two thin membranes above described, and which I conceive can be nothing but cotyledons; and again, if we compare this with fig. 11 of the same plate, which is a longitudinal section of the same, we perceive a line or long space descending

from the supposed embryo at the summit to the base of the albumen, a fact which precisely accords with what I have described in the preceding analysis. Upon such grounds I am inclined to believe, that what I have detailed above is the real structure of the seed in *Stemonurus*. In anatropal suspended seeds with a superior radicle, it is usual to observe the raphe terminate at the opposite extremity to the point of suspension; but in this case we find an exception to this general rule, which seems opposed to the established theory: here the direction of the raphe would seem to indicate a double retroversion of the ovule: so singular a fact may be of more frequent occurrence, but I confess that I have never met with, nor seen the record of, any such development. On the other hand, again, we have an analysis given by Blume of the seed of *Stemonurus secundiflorus* in his 'Mus. Lugd. Bat.,' in which the embryo is small in the summit of the albumen, as represented by Dr. Wight, the radicle being terete and the cotyledons exceedingly small.

The flowers of *Stemonurus* are sometimes 4-, often 5-merous, but I am not aware whether this can be depended on as a good specific character; all I can affirm is, that in those specimens I have seen, where 4-merous flowers prevail, I have occasionally met with some that are 5- or even 6-merous. Generally, the inflorescence is so short, as often to appear like a cluster of axillary fasciculated flowers; in other species it consists of long branching panicles, in which the flowers are sometimes secundly disposed. The flowers are always glabrous, and each articulated upon its separate pedicel, which is often pubescent. I have seen but few of the species on record, and those mostly imperfect specimens. In the following enumeration the characters are therefore given as described by their several authors; they require doubtless a more careful revision, for as they generally resemble each other so much in the appearance of the leaves, the shape of which often varies in the same species, it is probable that better and more valid characters may be found in the inflorescence. The outline of generic features here offered is founded wholly on my own observation.

**STEMONURUS**, Bl. *Lasianthera*, Pal. Beauv. *Gomphandra*, Wall.

—*Flores* hermaphroditi vel abortu polygami. *Calyx* parvus, brevissime cupularis, limbo fere integro, 4-5-denticulato, vel 4-5-fido, immutatus et persistens. *Petal*a 4-5, hypogyna, oblonga, carnosa, summo marginibus mucroneque apicali pro-pendenti inflexis, æstivatione valvata, libera, vel interdum marginibus imo cohærentibus, simulque cum filamentis adhæsis in tubum cylindraceum sic leviter agglutinatis, e medio liberis et reflexis. *Stamina* 4-5, cum petalis inserta, iisdem alterna;

*filamenta* sæpe aucta et demum exserta, crasso-carnosa, lata, compressa, incurvula, summo truncato ac breviter repente acuto, carinaque interna mediana, pilis longis albidis apice clavatis munita; *antheræ* istis æquilatæ, ovatæ, introrsæ, plus minusve cordatæ, 2-lobæ, lobis singulatim 2-locellatis demum septucidis et longitudinaliter evolutim dehiscentibus. *Pollen* acute 3-gonum. *Ovarium* globoso-conicum, 4-5-sulcatum, disco parvo insitum, glandula crassa sub-annulari aut sublobata coronatum, sæpissime sterili, quandoque fertili et tunc cito multoties elongatum et cylindricum, 1-loculare, *ovula* 2 anatropa juxta apicem loculi subcollateraliter superposita, podospermio crasso suspensa. *Stylus* brevissimus, conicus, 4-5-sulcatus, summo cavus, dentibusque 4-5 erectis stigmatosis terminatus, et simul cum glandula (in ovario fertili) in discum magnum pulvinatum sub-lobatum epigynum demum auctus. *Drupa* oblonga, parcissime carnosa, olivæformis, interdum elongata, monopyrena, calyce persistente suffulta, et pulvino coronata: *putamen* lignosum, ovato-oblongum, dorso convexius, uniloculare, monospermum, ad faciem ventralem planiusculam infra apicem foramine parvo (loculo attingente) perforatum, hinc extus fere ad imum longitudinaliter profunde canaliculatum, illinc usque ad fundum introitu diagonali (loculo evitante) pertusum. *Semen* conforme, funiculo infra apicem loculi suspensum; *funiculus* crassus, fibrosus, e rapheo dorsali ortus, per foramen apicale loculi trajectus, tunc canalem externum pervadens, et introitum basalem penetrans, denique in toro amissus; *testa* submembranacea, cum integumento interno cohærens; *raphe* hippocrepicus in faciem dorsalem testæ immersus, primum ex apice versus latus fere ad imum decurrens, hinc repente deflexus, per latus adversum fere ad apicem accurrens, et in carunculam apicalem desitus. *Embryo* inversus, rectus, *cotyledonibus* magnis, cordatis, textura tenuissimis, latitudine curvatis, in medio albuminis carnosi fere æquanti immersis, *radicula* brevi, tereti, supera, 6-plo longioribus. [Ex iconibus et descriptionibus clar. Wight et Blume *embryo* in apicem albuminis immersus, brevis, *radicula* tereti, supera, *cotyledonibus* minutissimis, compressis.]—Arbores vel frutices *Indiæ Orientalis et Archipelagi Asiatici indigenæ*: folia *alterna, elliptica, vel lanceolata, coriacea, glaberrima, petiolata*; flores *parvi, flavo-viriduli, odoratissimi, in racemos spicatos sæpe 1-laterales, vel in cymas axillares rarius oppositifolias dispositi, interdum (præsertim in ovuligeris) fasciculato-aggregati*; fructus *purpureus*.

1. *Stemonurus pauciflorus*, Bl. Bijd. 648;—foliis oblongis, acuminatis, basi acutis, glabris; pedunculis brevibus apice 2-3-fidis, 2-3-floris.—Java.

2. *Stemonurus secundiflorus*, Bl. Bijd. 649 ;—arbor 10-pedalis ; foliis oblongis, acutis, basi angustatis, coriaceis, glabris, aveniis, apice spicis 3-4-fidis, floribus secundis, filamentis carnosis, linearibus, petalis æquilongis, pilis longissimis clavatis ciliatis ; drupa valde elongata, apice attenuata.—Java.
3. *Stemonurus Javanicus*, Bl. l. c. ;—foliis oblongis, utrinque acuminatis, coriaceis, glabris, venosis ; cymis solitariis geminisve densifloris.—Insul. Nusa Kambangan.
- β. foliis ovalibus, utrinque acuminatis, submembranaceis, glabris, junioribus ad costam infra puberulis ; cymis dichotomis solitariis.
4. *Stemonurus quadrifidus*, Bl. Mus. Bot. Lugd. Bat. 249 ;—foliis e basi acutiusculis, oblongis v. oblongo-lanceolatis, obtuse acuminatis, membranaceis, cymis umbellato-4-fidis, multifloris.—Sumatra.—Folia  $3\frac{1}{4}$  ad 6 poll. longa,  $1-1\frac{3}{4}$  poll. lata.
5. *Stemonurus prasinus*, Bl. l. c. S. Javanicus, *Krthls.* ;—foliis e basi acutiuscula ellipticis, v. elliptico-oblongis, longiuscule acuminatis, membranaceis ; cymis 3-furcatis, multifloris.—Sumatra.—Folia  $4\frac{1}{2}$ -6 poll. longa,  $1\frac{3}{4}$ -3 poll. lata.
6. *Stemonurus macrocarpus*, Bl. l. c. ;—foliis e basi acutiuscula ellipticis, v. elliptico-oblongis, obtuse acuminatis, subcoriaceis ; pedunculis solitariis paucifloris, fructibus elongato-ellipsoideis.—Ins. Borneo.—Folia  $4\frac{1}{2}$ -6 poll. longa,  $2\frac{1}{4}$ -3 poll. lata (evidenter ♀).
7. *Stemonurus macrophyllus*, Bl. l. c. ;—foliis e basi acuta ellipticis, obtuse acuminatis, coriaceis ; racemis geminis confertisve ; fructibus cylindræis.—In Archip. Indico.—Folia  $5\frac{1}{2}$ -9 poll. longa,  $2\frac{3}{4}$ - $4\frac{1}{2}$  poll. lata.
8. *Stemonurus parviflorus*, Bl. l. c. ;—foliis e basi acuta vel obtusa oblongis vel elliptico-oblongis, acuminatis, membranaceis, cymis brevissimis densifloris, drupis cylindricis.—Sumatra.—Folia 5-10 poll. longa, 2-4 poll. lata.
9. *Stemonurus?* *littoralis*, Bl. l. c. ;—foliis e basi acutiuscula v. obtusa ellipticis, acuminatis, coriaceis.—Nova Guinea.—Folia 6-9 poll. longa,  $3\frac{1}{2}$ -4 poll. lata.
10. *Stemonurus?* *membranaceus*, Bl. l. c. ;—foliis e basi acuta elliptico-oblongis vel oblongo-lanceolatis, acuminatis, membranaceis.—Java.—Folia 6-10 poll. longa,  $2\frac{1}{2}$ - $3\frac{1}{4}$  poll. lata.
11. *Stemonurus Africanus*. Lasianthera Africana, *Pal. Beauv. Fl. Owar.* i. 85. tab. 51 ; *D.C. Prodr.* i. 636 ;—suffrutex scan-

dens, foliis lanceolato-vel ovato-oblongis, cuspidatis, imo rotundatis, apice longe acuminatis vel cuspidatis, cyma oppositifolia, apice umbellatim ramosa, ovarii stylo brevi, stigmatate obtuso.—Africa tropica; Chama, fl. St. Jago.—Folia 6 poll. longa, 2 poll. lata, petiolus 1-pollicaris: inflorescentia 2-pollicaris, ramis 4-5-umbellatis, floribus apice agglomeratis.

12. *Stemonurus coriaceus*. Gomphandra coriacea, *Wight, Ill. Ind. Bot.* i. 103;—dioicus, foliis coriaceis, ovalibus, utrinque attenuatis vel obovato-cuneatis, floribus 4-andris, cymis ♂ axillaribus, 4 floris; ♀ floribus solitariis vel 2-3, racemosis, fructibus oblongis, cylindræis.—Ind. Oriental.

13. *Stemonurus polymorphus*. Gomphandra polymorpha, *Wight, Ill. Ind. Bot.* i. 103; *Icon. Pl.* tab. 953-954;—glaber, foliis oblongis vel obovato-lanceolatis, acuminatis, membranaceis, subtus glaucis, breviter petiolatis; cymis axillaribus solitariis vel geminis petiolum æquantibus, masculis plurifloris, fœmineis 2-5-floris, calyce integro minute 4-5-dentatis, petalis 4-5, glabris, staminibus exsertis, cristato-pilosis, fructibus ovoideis.—India orientalis.

Var. *a. acuminata*, *β. oblongifolia*, *γ. angustifolia*, *δ. longifolia*, *ε. ovalifolia*.

This species is described as being commonly diffused over the whole Peninsula of India, and subject to many varieties of form, but I suspect that if these were more carefully examined, several specific differences would be found to exist among them. I have copied the character from Dr. Wight's description, omitting however three features, viz. "dioicus"—"petalis basi in corollam tubulosam coalitis"—and "antheris minute cristato-pilosis." I find in all cases the petals are quite free, although strongly agglutinated by their edges, and that they do not open even at the summits until some time after impregnation, and then they gradually become separated at their edges to the base, after which, in time, they fall off. There seems to have been a general conviction among botanists, that in *Gomphandra* the anthers are pilose; this is so stated by Endlicher and Wight, but in every instance I have found the clavate hairs that form a hooded crest over the anthers all spring from the filaments. Dr. Wight, in his 'Icones,' represents the male plant in this species as having beardless stamens (see figs. 1 & 4. tab. 953), and it is worthy of note that the ovarium is here depicted as being ovuligerous (see fig. 6): the female plant in plate 954 has bearded stamens with a fertile ovarium, the progress of the development of which, to the state of ripened fruit, is here shown: it has hence been inferred by that distinguished botanist, that the occurrence of bearded or beardless stamens constitutes a true sexual distinc-



tion. My observation upon dried specimens leads me to an opposite conclusion, for I find in every instance I have examined, that the stamens are bearded even in the male flowers, that is to say, where the ovarium has been quite sterile: and even in what are called female flowers, that is, where the ovarium is ovuligerous, the stamens are equally barbed, whether the anthers be charged with pollen or filled only with a grumous mass. I am therefore led to the irresistible conclusion, that the plant figured by Dr. Wight as the male plant of *Gomphandra polymorpha* belongs to a distinct genus, being a species of Blume's *Platea*, which will be hereafter described. As additional evidence in favour of this conclusion, I may mention the fact, that Dr. Wight describes the male plant in plate 953 as flowering in the months of March and April, and the female plant in plate 954 as having its fruit ripened in the same months: this would occur probably alone on the supposition that the fruit was the production of a previous year's growth.

Among the Ceylon collection of the late Mr. Gardner (no. 102) is a plant which I take to be the variety *longifolius* of this species: it is certainly different from the *longifolius* of Dr. Wallich's collection, which will be presently described; the leaves are here of a light pallid green; two or three short dichotomous racemes grow out of each axil; the calyx is entire, but the petals and stamens have all fallen away; the ovarium is long and cylindrical, and is terminated by a flattened 5-lobed disk, which considerably exceeds in diameter that of the ovarium; it is 1-celled, with two large ovules suspended from near the summit of the cavity: on account of the clavate form of the ovarium this affords a good illustration of Dr. Wallich's genus *Gomphandra*, and is well represented in Wight's 'Icones,' tab. 954. figs. 6 & 7. The remarks offered upon the development of the ovarium in *S. affinis* will equally apply to the present instance\*.

14. *Stemonurus Gardneri*, n. sp.;—glaber, ramulis teretibus, subflexuosis; foliis ellipticis, utrinque acutis, apice obtusiusculo breviter lineari-angustatis, glaberrimis, valde coriaceis, utrinque eveniis, costa nervisque supra impresso-sulcatis, subtus prominentibus, inferne subferrugineis margine revoluta, petiolo longiusculo, tereti, superne haud sulcato; racemo oppositifolio, petiolo longiori, floribus masculis paniculatis 5-meris, staminibus in alabastro petalis brevioribus, pilis clavatis antheris brevioribus munitis; fructu oblongo, disco 10-lobo umbilicato coronato.—In Mont. Neilgherrensib.

The plant here described was sent to me by the late Mr. Gardner as the *Gomphandra polymorpha*, being collected by him as

\* The analysis of the structure of the flowers and of the seed of this species will be shown in plate 13 of the 'Contributions to Botany,' &c.

such, in company with Dr. Wight, in the Neilgherry Hills: it might therefore be considered as an authentic sample of this species. Its characters however will be seen to be quite at variance with those given by Dr. Wight of other plants of this species, collected by him in the same neighbourhood, where the leaves are said to be membranaceous and shortly petioled: here, on the contrary, they are extremely opaque and thickly coriaceous: the inflorescence is not only there described, but figured as being axillary; here, on the contrary, it is always opposite to the leaves. It is not easy to say whether this plant is referrible to any of the varieties mentioned by Dr. Wight, but from the differences here shown, it certainly claims the rank of a species distinct from his *Gomphandra polymorpha*. The leaves are  $2\frac{3}{4}$ – $3\frac{1}{4}$  inches long,  $1\frac{1}{4}$ – $1\frac{1}{2}$  inch broad, on a petiole half an inch in length; the male panicle is branching, nearly an inch in length, with flowers oval in bud, about  $1\frac{1}{2}$  line long; both the male and female inflorescence, as in the following species, spring from the side of the stem opposite to the petiole: the calyx is cupshaped, with a 5-denticulated margin; the five petals are oblong, with inflexed margins and apex; the stamens, shorter than these, have fleshy filaments, with glandular hairs scarcely longer than the anthers: the ovarium is oblong, glabrous, sterile, with a conical hollow style. The fructiferous raceme is  $\frac{5}{8}$  of an inch long, bearing an oblong drupe, 7 lines in length, surmounted by a depressed, umbilicated, 10-lobed disk, and supported upon its minute, persistent calyx. The internal structure of the fruit has been already described in a foregoing page.

15. *Stemonurus Penangianus*. *Gomphandra Penangiana*, Wall.; —ramulis teretibus, pallide ferrugineis; foliis oblongo-lanceolatis, imo cuneatis, apice lineari-angustatis, coriaceis, glaberrimis, subtus pallidioribus margine revolutis, petiolo brevi, crassiusculo, profunde canaliculato; cyma oppositifolia, subumbellatim et 2–3–4-chotome ramosa, floribus hermaphroditis, secundis, cum pedicellis articulatis, valde deciduis, carina interna petalorum in appendice longe propendenti inflexa maxime producta, filamentis longe ciliatis, antheris polliniferis, ovario brevissimo, 5-gono, apice pulviniformi et umbilicato, stylo conico, sub-brevi, tubuloso, dentibus 5 erectis acutis terminato.—Penang.—(v. s. in herb. Soc. Linn. Wall. Cat. 7204.)

This species is very distinct on account of its singularly branching racemes, with long rows of secund flowers, which are always placed on the side of the stem opposite to the insertion of the petiole. The stems are quite glabrous and of a dull light brown colour. The leaves are about  $5\frac{1}{2}$  inches long,  $1\frac{1}{2}$ – $1\frac{3}{4}$  inch

broad, on a petiole 3 or 4 lines in length. The primary peduncle is 3 to 6 lines long, branching somewhat umbellately into from three to six branches, which are again dichotomously, or sometimes umbellately subdivided into lengthened curving branchlets, from 6 to 9 lines long, closely and pectinately beset with pedicels, from which the articulated flowers have fallen off, all being quite glabrous and of an ochreous colour. The calyx is small, cupshaped, minutely 5-toothed; the petals adhere by their margins below in a tubular form, the summits being quite free; the stamens are the length of the petals, but the long ciliated crests are far exserted; the filaments are thick and fleshy, having their margins and apices charged with very long clavate white hairs; the upper part of the inner keel interposes between the lower part of the two lobes of the anthers, which are oval, deeply separated at their base, the lobes being attached dorsally at their junction to the apical point of the filament; they are polliniferous, the granules of pollen being sharply 3-angular: the ovarium is distinctly ovuligerous.

16. *Stemonurus longifolius*. *Olox longifolia*, *Wall.*;—ramulis teretibus, gracilibus, glabris, ochraceis; foliis valde lanceolatis, utrinque acutis, apice lineari-angustatis, glaberrimis, flavovirentibus, subtus pallidioribus, petiolo gracili; panicula pauciflora, glaberrima, petiolo vix longiori, floribus glabris, petalis 4, staminibus 4, filamentis crassis, dilatatis, longe ciliolatis, antheris effœtis, ovario sterili, 4-sulcato, stylo conico tubuloso 4-5-dentato coronato.—Sylhet.—(v. s. in herb. Soc. *Linn. Wall. Cat.* 6782 *A. et B.*)

This species is remarkable for its very long narrow leaves, which are attenuated at their apex into a lengthened linear extension; they are of a pale colour above, of a glaucous yellowish hue below, about 6 inches long, including the linear apical extension of an inch in length, and  $\frac{7}{8}$  of an inch broad, upon a slender petiole 3 or 4 lines in length. The inflorescence seldom exceeds 4 lines in length, several flowers about 2 lines long being almost fasciculated on an axillary peduncle of 2 lines in length, all quite glabrous: the calyx is small, cupshaped and 5-toothed; petals 4, linear; stamens 4, with very fleshy filaments nearly the length of the petals, furnished on their margins and apex with a dense fringe of long clubshaped hairs; the two anther lobes are each 2-celled, sterile, and filled with grumous matter; the ovarium is smooth, cylindrical,  $\frac{1}{4}$  or  $\frac{1}{6}$  the length of the stamens, sterile, and terminated by a hollow, tubular, conical style, divided at its apex into four acute erect teeth.

17. *Stemonurus Heyneanus*. *Olox Heyneanus*, *Wall.*;—ramulis

subflexuosis, glabris; foliis oblongis, utrinque acutis, apice breviter repente angustatis, glaberrimis, opacis, petiolo gracili; racemo axillari, petiolo sublongiori, bifido, vel subdichotome ramoso, floribus secundis, vel subaggregatis; calyce cupuliformi, 5-denticulato, petalis 4-5, linearibus, apicula inflexa longe propendenti, staminibus 4-5, crassis, demum elongatis et exsertis, pilis clavatis antheris fertilibus 2-plo longioribus munitis; ovario sterili, subgloboso, 4-5-sulcato, apice pulviniformi, subumbilicato, stylo brevissimo, fere obsoleto.—India. Orient.—(v. s. in herb. Soc. Linn. et Hook., Wall. Cat. 6780.—Ceylon, Gardner, 102.)

This plant bears much the aspect of *Stemonurus polymorphus*; the leaves are of a pale green, of nearly the same hue on both sides; the specimens in the herbarium of the Linnæan Society are oblong, with parallel sides, or sometimes tapering a little towards the base from the upper part, where they are broadest, and then suddenly contracted into a narrow and obtuse point; they are 3 to  $3\frac{1}{2}$  inches long,  $1\frac{1}{2}$  inch broad, on a slender petiole about 4 lines in length. In the Ceylon specimens the leaves taper more regularly to each extremity, and are somewhat narrower. The flowers are generally 5-, rarely 4-merous; sometimes the hairs of the stamens are short and nearly obsolete, at other times double the length of the anthers; the cells of these are in some specimens replete with perfect pollen, in others filled with grumous matter: the ovarium is generally depressed or globose, and I have never met with a single instance of their possessing ovuligerous cells.

18. *Stemonurus axillaris*. *Gomphandra axillaris*, Wall. *Lasi-anthera tetrandra*, Wall. *Flor. Ind. Or.* vol. ii.;—ramulis teretibus, flexuosis, substriatis, glabris; foliis oblongis, utrinque acuminatis, apice angustato-attenuatis, glabris, opacis, subtus pallidioribus, margine revolutis; panicula ramosa, petiolo paullo longiori, glabra, floribus crebris, subsecundis, 4-5-meris, calyce cupuliformi, 5-denticulato, petalis margine inflexis, apice longe propendenti, staminibus fertilibus, longissime ciliolatis, ovario sæpe sterili, interdum ovuligero, oblongo, vel subgloboso, 4-5-gono, stylo conico, tubuloso, apice 4-5-dentato.—Sylhet.—v. s. in herb. Soc. Linn. Wall. Cat. 3718.)

As in *S. Penangianus*, I have observed that in many cases where the ovarium is ovuligerous, the anthers have been charged with perfect pollen, so that such flowers may be said to be truly hermaphrodite: in most instances, however, the ovarium is sterile. The leaves are from  $3\frac{1}{2}$  to  $4\frac{1}{2}$  inches long, including a narrow and almost linear apical point of half an inch in length; they are  $1\frac{1}{4}$  to  $1\frac{1}{2}$  inch broad, on a petiole half an inch long: the

racemes,  $\frac{5}{8}$  to  $\frac{3}{4}$  inch long, have numerous crowded flowers which do not exceed 3 lines in length: the hairs of the filaments are three or four times the length of the anthers, and arch over them in a very graceful manner: the pollen-grains are acutely 3-gonous.

19. *Stemonurus Cumingianus*, n. sp.;—ramulis flexuosis, teretibus, ferrugineo vel flavido-tomentosis; foliis oblongis, utrinque acutis, apice repente attenuatis, supra glabris, subtus brunneis et sparse pubescentibus, costa nervis petioloque ferrugineo-pilosulis, margine subrevoluto; panicula ramosa, petiolo tenui vix longiore, pubescente, floribus ♂ crebris, subcapitatis, 5-meris; calyce brevissimo, 5-denticulato, piloso, petalis glabris, oblongis, summo marginibus apiculaque longa propendenti inflexis; staminibus iisdem brevioribus, latis, crassis, pilis clavatis longissimis ciliolatis; ovario oblongo, piloso, dentibus 5 coronato.—Insul. Philip.—v. s. in *herb. Hook. et Lindl.* (Cuming, 796).

The leaves here are 5–6 $\frac{1}{2}$  inches long, and 2 $\frac{1}{2}$ –3 inches broad, on a petiole 5–7 lines in length; the panicle is trichotomously branched, with crowded 5-merous flowers, which are still in bud; the upper margins of the petals are deeply inflected, together with their long apical points, which are all closely agglutinated into a long process that hangs down in the centre of the anthers; the filaments are rather short and broad, fringed with extremely long glandular hairs; the ovarium, seated on a short glabrous disc, is cylindrical, and altogether very pilose, growing smaller and more conical towards the summit, where it is hollow and 5-toothed.

20. *Stemonurus Ceylanicus*, n. sp.;—ramulis glabris, ochraceis; foliis oblongis, utrinque virentibus, subtus pallidis, costa mediana prominenti; paniculis axillaribus, geminis, dichotome ramosis, petiolo brevi 3-plo longioribus, pubescentibus, floribus in ramis secundis, crebris, calyce 5-denticulato, glabro, petalis linearibus, sicco aurantiacis, staminibus iisdem æquilongis, apice carinaque interna longissime ciliolatis; ovario sterili, glabro, depresso-10-lobato, apice profunde umbilicato, stylo brevissimo in cavitatem incluso.—Ceylon.—v. s. in *herb. Lindl. et Hook.* (Macrae, 428).

This species differs from *S. Penangianus* in the axillary origin of its inflorescence, in its much shorter and geminate panicles, in which the flowers, though somewhat secund, appear almost aggregated. The leaves, which are thin and almost membranaceous in texture, appear when dried of a darkish green above, and of a very pale green beneath, with prominent nervures and veins; they are about 6 inches long, and nearly 2 inches broad,

on a petiole barely exceeding 3 lines in length. The panicles are scarcely 9 lines long; the calyx is small, obsoletely 5-toothed; the five petals are linear, with a long inflected apex; the five stamens are equal to them in length, with broad, thick, fleshy filaments, the internal keel, upper margins and summit being closely fringed with very long clavated hairs, which are three times the length of the anthers; these consist of two oval lobes, fixed together by a point near the apex, where they are attached to the filaments, the lobes below being separated by the summit of the keel, so that they rest in two cavities in the apex of the filaments, as occurs in most species of this genus; the ovarium is globular, somewhat 10-lobed, depressed at the summit, and deeply umbilicated in the centre, in the cavity of which, the obsolete style and stigma, forming a depressed lobe, lie concealed; the body of the ovarium is fleshy, with no apparent cells\*.

21. *Stemonurus Walkeri*, n. sp.;—ramulis teretibus, subdichotome divisis; foliis oblongis, imo vix acutis, apice valde obtuso et hinc subito attenuatis, utrinque glaberrimis fuscis et concoloribus, crasso-coriaceis, supra nitido-opacis, costa sulcatis, nervis immersis, subtus costa crassiuscula nervisque tenuissimis prominentibus, margine subrevoluto, petiolo breviusculo; racemo axillari, brevi, paucifloro, floribus ♂ 4-meris, ♀ 5-meris, filamentis crassis, apice sub-breviter ciliolatis.—Ceylon.—v. s. in herb. Hook. (♂ Col. Walker, ♀ Gardner, 101).

This species is distinguishable by its much darker and more fleshy, smooth leaves, which are nearly 4 inches long, and  $1\frac{1}{2}$  inch broad, on a rather stout petiole, about 4 lines in length; the calyx is small, and rather deeply 5-toothed; the male flowers have oblong petals, with an internal longitudinal keel, and a long inflexed apical joint, four stamens equal to them in length, with very broad, thick, fleshy filaments, which are furnished on the upper margin with a row of clavate hairs, scarcely longer than the anthers; the pollen is acutely 3-angular; the ovarium is sterile, oblong, with a rather long, conical, hollow style, toothed at its apex. The female flowers have five thick fleshy petals, and five stamens formed like the others, but the cells are filled with grumous matter; the ovarium is nearly the length of the stamens, somewhat 5-grooved, globular in its lower moiety, smaller and cylindrical in its upper half, which presents here somewhat excentrically, a single cell with two distinct ovules suspended from near the summit, on the side towards the axis: the apex of the very short ovarium is crowned with a conical, 5-lobed,

\* A representation of this species, with the details of its floral structure, will be given in plate 13 of the 'Contributions to Botany,' &c.

disciform process, equal to it in diameter, the summit being terminated by five very minute teeth\*.

22. *Stemonurus affinis*, n. sp. ;—ramulis tortuosis, nodosis ; foliis ellipticis, utrinque subacuminatis, apice obtusiusculo attenuatis, opacis, supra in costam sulcatis, subtus pallidioribus, costa nervis venisque prominulis, margine subrevoluto, petiolo tenui teretiusculo superne sulcato ; panicula axillari, pauciflora, petiolo vix longiore, pedicellis pubescentibus, calyce 5-dentato petalisque oblongis breviter apiculatis glabris, staminibus iisdem vix æquilongis, filamentorum apicibus carinaque interna longissime ciliatis, ovario fertili, longitudine staminum, longe cylindrico, paullulo incurvo, apice pulvinato.—Malacca.—*v. s. in herb. Hook.* (Griffiths).

This species is near *S. polymorpha*, but differs in several particulars. It appears to be a remarkably knotty and scrubby tree ; its leaves are about  $3\frac{1}{2}$  inches long,  $1\frac{1}{4}$  to  $1\frac{5}{8}$  inch broad, on a petiole 4 or 5 lines in length ; its panicles are 6 or 8 lines long, and its flowers offer a very instructive exemplification of the development of the ovarium ; the last-mentioned species exhibiting an intermediate stage, between that described in *S. Penangianus*, and this, which offers another manifest instance of Dr. Wallich's genus *Gomphandra*. Here the fleshy petals are linearly oblong, with a comparatively short inflexed apex ; the stamens are not equal to them in length ; the filaments exceed the anthers in breadth, but are not quite so thick as in other species ; they are suddenly contracted to a sharp point at the apex, and have a less prominent internal keel, the summit of which, together with the upper margins of the filaments, are fringed with very long clavate hairs ; the anthers are 2-lobed and sagittate from near the almost apical point of their attachment ; the lobes are membranaceous, each longitudinally split open and quite void of pollen or other matter, so that it is not apparent whether they have been fertile or sterile. The ovarium is the length of the stamens, is cylindrical, a little curved, and rather thicker towards the apex ; in diameter it is scarcely broader than the filaments, quite smooth, and surmounted by a short, compressed, umbilicated, and somewhat 5-lobed disciform process, which partly overhangs the summit ; the body of the ovarium exhibits only a single large cell, of nearly its whole length, from one side of which, near the summit, two ovules, that almost fill the cavity of the cell, are suspended, each from a short cupshaped strophiole†.

\* A figure of this species, and an analysis of its floral structure, will be shown in plate 14 of the 'Contributions to Botany,' &c.

† This species, and the details of its floral structure, will be exhibited in plate 15 of the 'Contributions to Botany,' &c.